TECHNICAL MANUAL

AVPTC Air Handlers

- Refer to Service Manual RS6200006 for installation, operation & troubleshooting information.
- All safety information must be followed as provided in the Service Manual.
- Refer to the appropriate Parts Catalog for part number information.
- Models listed on page 3.

This manual is to be used by qualified, professionally trained HVAC technicians only. Goodman does not assume any responsibility for property damage or personal injury due to improper service procedures or services performed by an unqualified person.

RT6121001r6
May 2011

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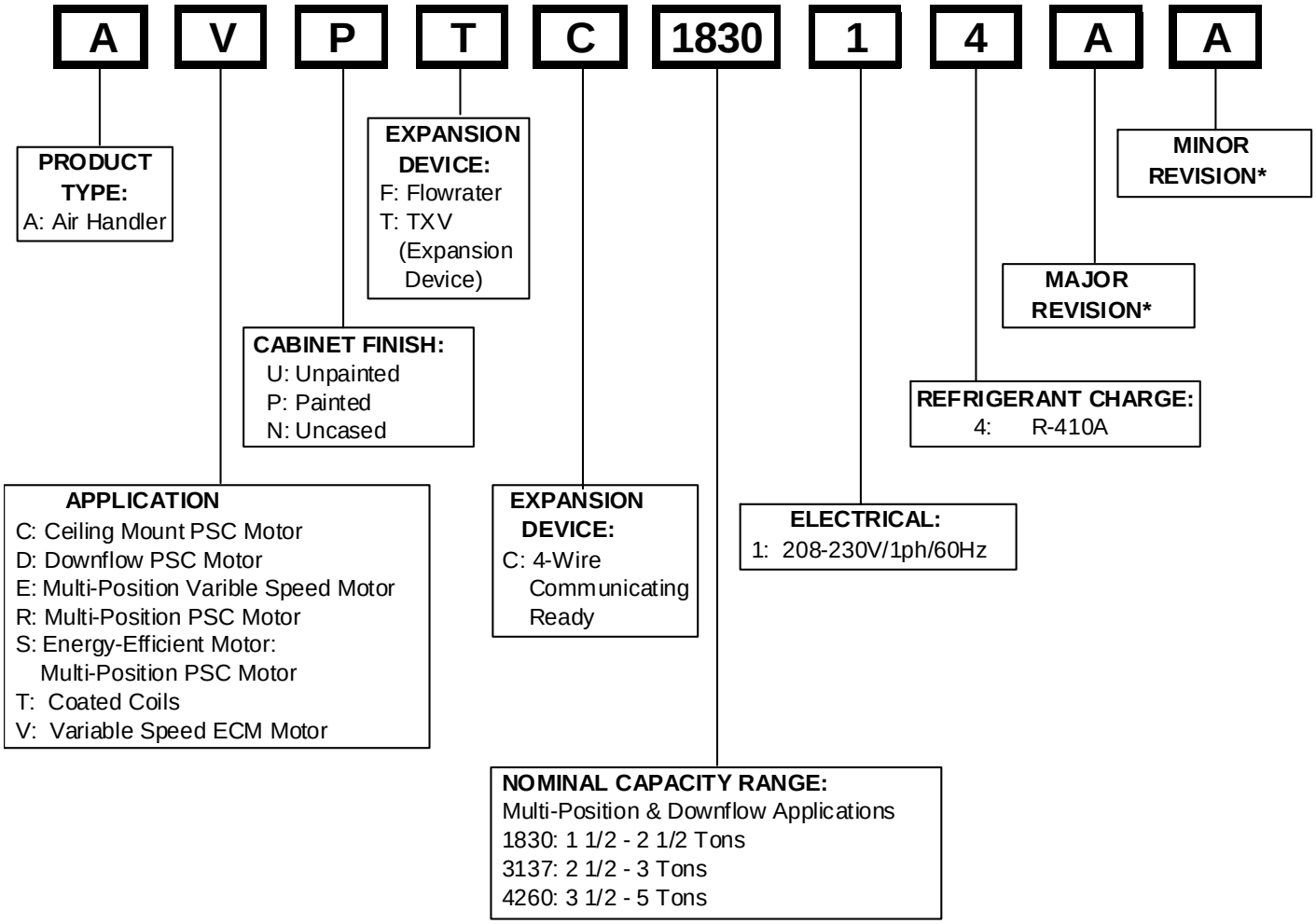
PRODUCT IDENTIFICATION

The model number is used for positive identification of component parts used in manufacturing. Please use this number when requesting service or parts information.



All Airhandlers use DIRECT DRIVE MOTORS. Power supply is AC 208-230v, 60 hz, 1 phase.

⚠ WARNING

HIGH VOLTAGE!

Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

⚠ WARNING **Goodman will not be responsible for any injury or property damage arising from improper service or service procedures. If you install or perform service on this unit, you assume responsibility for any personal injury or property damage which may result. Many jurisdictions require a license to install or service heating and air conditioning equipment.**

⚠ WARNING **Installation and repair of this unit should be performed ONLY by individuals meeting (at a minimum) the requirements of an "entry level technician", as specified by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI). Attempting to install or repair this unit without such background may result in product damage, personal injury or death.**

PRODUCT IDENTIFICATION

The model number is used for positive identification of component parts used in manufacturing. Please use this number when requesting service or parts information.

AVPTC183014**
AVPTC313714**
AVPTC426014**

⚠ WARNING **The United States Environmental Protection Agency ("EPA") has issued various regulations regarding the introduction and disposal of refrigerants introduced into this unit. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. These regulations may vary by jurisdiction. Should questions arise, contact your local EPA office.**

⚠ WARNING **Do not connect or use any device that is not design certified by Goodman for use with this unit. Serious property damage, personal injury, reduced unit performance and/or hazardous conditions may result from the use of such non-approved devices.**

⚠ WARNING **To prevent the risk of property damage, personal injury, or death, do not store combustible materials or use gasoline or other flammable liquids or vapors in the vicinity of this appliance.**

PRODUCT DESIGN

WARNING

When installing or servicing this equipment, safety clothing, including hand and eye protection, is strongly advised. If installing this equipment in an area that has special safety requirements (hard hats etc.), observe these requirements. To protect the unit when brazing close to the painted surfaces, the use of a quenching cloth is strongly advised to prevent scorching or marring of the equipment finish.

WARNING

HIGH VOLTAGE
Disconnect ALL power before servicing or installling this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

WARNING

The unit MUST have an uninterrupted, unbroken electrical ground to minimize the possibility of personal injury if an electrical fault should occur. The electrical ground circuit may consist of an appropriately sized electrical wire connecting the ground lug in the unit control box to the building electrical service panel. Other methods of grounding are permitted if performed in accordance with the "National Electric Code" (NEC)/"American National Standards Institute" (ANSI)/"National Fire Protection Association" (NFPA) 70 and local/state codes. In Canada, electrical grounding is to be in accordance with the Canadian Electric Code CSA C22.1. Failure to observe this warning can result in electrical shock that can cause personal injury or death.

WARNING

If this appliance is installed in an enclosed area such as a garage or utility room with any carbon monoxide (CO) producing appliance (i.e. automobile, furnace, water-heaters, etc.), ensure the area is properly ventilated.

AIR HANDLERS

**See Air Handler Specification Sheet for Proper Combinations.*

ALL AIR HANDLERS USE DIRECT DRIVE MOTORS. POWER SUPPLY IS 220-240 V, 60 HZ, 1 PHASE

Installation

Before installing this appliance insure that it is properly sized and adequate power is available.

This appliance can be installed in the vertical position without modification.

The horizontal left and downflow positions require product modification and instructions for these field conversions can be found in the AVPTC installation instruction manual.

This product is designed for zero inches (0 inches) clearance; however, adequate access for service or replacement must be considered without removing permanent structure. This unit can be installed on a platform when deemed necessary.

In an attic installation a secondary drain pan must be provided by the installer and placed under the entire unit with a separate drain line properly sloped and terminated in an area visible to the owner. This secondary drain pan is required in the event that there is a leak or main drain blockage. Closed cell insulation should be applied to the drain lines in unconditioned spaces where sweating may occur.

Appliances installed in garages, warehouses or other areas where they may be subjected to mechanical damage must be suitably guarded against such damage by installing behind protective barriers, being elevated or located out of the normal path of vehicles. When installed on a base, the base must also be protected by similar means.

Heating and cooling equipment located in garages, which may generate a glow, spark or flame capable of igniting flammable vapors, must be installed with the ignition source at least 18"[46cm] above the floor level.

When more than one appliance is installed in a building it shall be permanently identified as to the area or space serviced by the equipment.

PRODUCT DESIGN

When this product is installed in the downflow installation in an unconditioned space, remove the horizontal drain pan and install the following insulation kit

AVPTC Model	Insulation Kit
1830	DPI36-42/20
3137 4260	DPI48-61/-20

This kit is used to prevent sweating on the vertical drain pan.

To prevent the horizontal drain pan from sweating in high humidity applications, it is recommended that a DPIH insulation accessory kit be used. NOTE: The DPIH insulation kit is not supplied with this product and must be purchased separately.

See following chart for the correct DPIH kit.

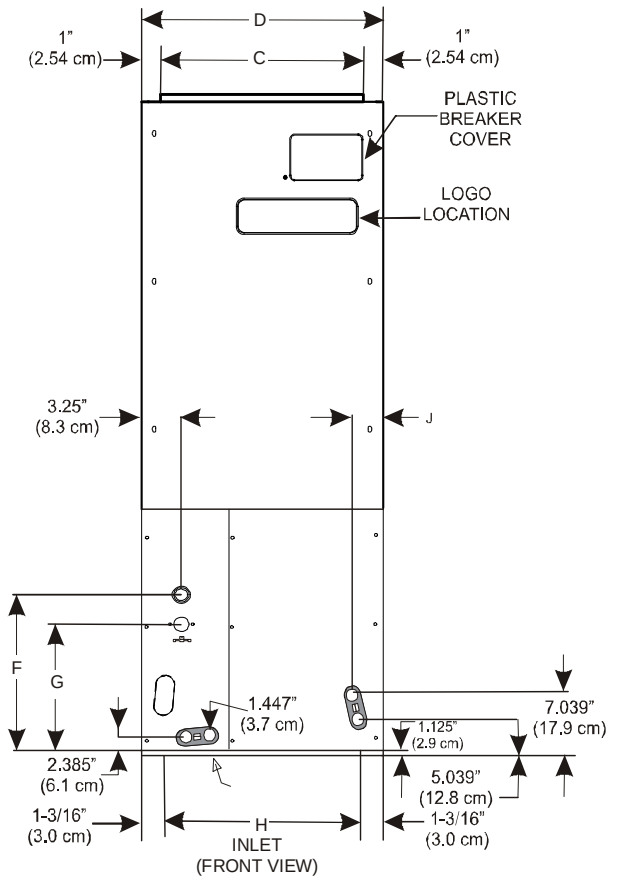
AVPTC Model	Insulation Kit
1830	DPIH36-42
3137 4260	DPIH48-61

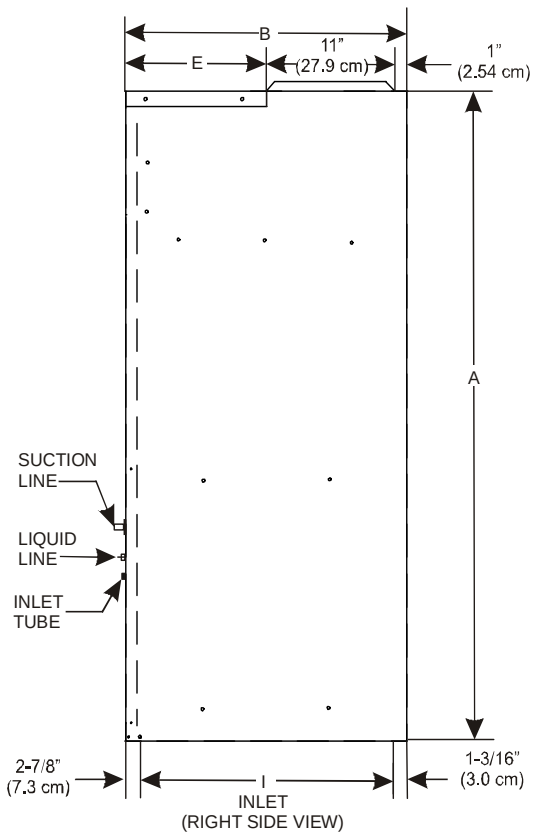
***AVPTC** is a multi-position, variable-speed air handler and is used with R-410A. The unit's blower design includes a variable-speed ECM motor and is compatible with heat pumps and variable-capacity cooling applications. *(See note below.)*

***NOTE:** Factory-sealed to achieve a 2% or less leakage rate at 1.0" water gauge external duct static pressure.*

Complies with the Factory-sealed Air Handling Credit as listed in the 2001 Florida Building Code, Chapter 13, Section 610.2.A.2.1.

PRODUCT DIMENSIONS AVPTC





Model	A	B	C	D	E	F	G	H	I	J
AVPTC183014	46 3/4"	22"	17 1/2"	19 1/2"	10'	14 1/2"	11 15/16"	17 1/8"	17 15/16"	2"
AVPTC313714	53 1/4"	24"	20"	22"	12"	19 5/8"	11 15/16"	19 5/8"	19 15/16"	1 13/16"
AVPTC426014	53 1/4"	24"	20"	22"	12"	19 5/8"	11 15/16"	19 5/8"	19 15/16"	1 13/16"

PRODUCT SPECIFICATIONS AVPTC

	AVPTC183016*	AVPTC313716*	AVPTC426016*
Blower Wheel			
Diameter	9 1/2"	10 5/8"	10 5/8"
Width	8"	10 5/8"	10 5/8"
Lineset Connection Size			
Coil Drain Connection FPT	3/4"	3/4"	3/4"
Liquid	3/8"	3/8"	3/8"
Suction	3/4"	7/8"	7/8"
Electrical Data			
Voltage	208/240	208/240	208/240
Min. Circuit Ampacity	4.9/4.9	6.5/6.5	8.6/8.6
Max. Overcurrent Device (amps)	15/15	15/15	15/15
Minimum VAC	197	197	197
Maximum VAC	253	253	253
Blower Motor			
FLA	3.90	5.20	6.90
HP	1/2	3/4	1
Ship Weight (lbs)	127	178	197

BLOWER PERFORMANCE DATA

Speed Selection Dip Switches

Cool Selection Switches		
Tap	1	2
A	OFF	OFF
B	ON	OFF
C	OFF	ON
D	ON	ON

Adjust Selection Switches		
TRIM	3	4
0%	OFF	OFF
+ 10%	ON	OFF
- 10%	OFF	ON
0%	ON	ON

TO SET AIRFLOW:

1.Select appropriate model from Cooling/Heat Pump Airflow Table. Based on desired Airflow for your application select corresponding tap (A,B,C or D). Set dip switches 1 & 2 to the appropriate ON/OFF positions.

2. Select appropriate Airflow adjustment factor for application (0%. +10%, -10%). Set dip switches 3 & 4 to the appropriate ON/OFF positions.

3. *If installed with Heater Kit:*
Using Electric Heat Airflow Table, set dip switches 9, 10 and 11 to the appropriate ON/OFF positions based on Heater kit installed.
If installed without Heater Kit:
Ensure dip switches 9, 10 and 11 are set to a valid heater kit selection. Example: The only valid heater kits for AVPTC183014* applications are 3, 5, 6, 8 and 10 kW.
Failure to do so will result in a Heater Kit error code.

TO SET COMFORT MODE:

Select desired Comfort Mode profile (see profiles above). Set switches 5 and 6 to the appropriate ON/OFF positions.

				Profile Selection Switches	
Profiles	Pre-Run	Short-Run	Off Delay	5	6
A	-------	-------	60 sec/100%	OFF	OFF
B	-------	30 sec/50%	60 sec/100%	ON	OFF
C	-------	7.5 mins/82%	60 sec/100%	OFF	ON
D	30 sec/50%	7.5 mins/82%	30 sec/50%	ON	ON

Cooling/Heat Pump Airflow Table

Model	Tap	Low Stage Cool	High Stage Cool
AVPTC183014*	A	420	630
	B	560	840
	C	700	1040
AVPTC313714*	A	410	610
	B	560	830
	C	700	1040
	D	830	1240
AVPTC426014*	A	810	1210
	B	940	1410
	C	1050	1560
	D	1210	1800

NOTE: Airflow data shown applies to non-communicating mode operation only. For a fully communicating system, please see the outdoor unit's installation instructions for cooling and heat pump airflow data. *See ComfortNet™ System - Airflow Consideration section for details.*

Electric Heat Airflow Table

Htr kW	9	10	11	AVPTC 183014*	AVPTC 313714*	AVPTC 426014*
3	ON	ON	ON	630	610	600
5	ON	ON	OFF	730	710	680
6	ON	OFF	ON	840	840	790
8	ON	OFF	OFF	1080	1060	990
10	OFF	ON	ON	1270	1260	1190
15	OFF	ON	OFF	NR	1470	1390
20	OFF	OFF	ON	NR	NR	1580
21	OFF	OFF	OFF	NR	NR	1580

NOTE: Airflow data shown applies to the emergency heat mode (electric heat only) in either non-communicating mode operation or fully communicating mode operation.

NOTE: Airflow blink codes are approximations of actual airflow.

Heat Kit Selection

MODELS	HKR-03*	HKR-05*/-05C*	HKR-06*	HKR-08*/-08C*	HKR-10*/-10C*	HKR-15C	HKR-20C	HKR-21C
AVPTC183014A*	X	X	X	X1	X1	---	---	---
AVPTC313714A*	X	X	X	X1	X1	X2	---	---
AVPTC426014A*	X	X	X	X	X	X	X3	X3

* Revision level that may or may not be designated.

C Circuit breaker option.

NOTE:

When 8kW and 10kW heat kits are used with an AVPTC1830 and AVPTC3137, matched with 2- ton outdoor unit, see Note 1 below.

[1] Set Heater Kit dip switches 9, 10 and 11 to 6kW setting (9-ON, 10-OFF,11-ON) to obtain 840 CFM.

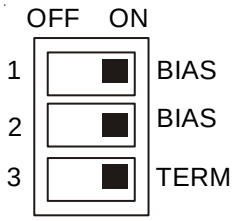
[2] This heater kit can only be used for '1000 CFM or higher' applications.

[3] This heater kit can only be used for '1200 CFM or higher' applications.

BLOWER PERFORMANCE DATA

Indoor Control			Outdoor Control		Data Line Voltages, Vdc		
BIAS Dipswitches		TERM Dipswitch	TERM Dipswitches		1-C	2-C	1-2
Switch 1	Switch 2	Switch 3	Switch 1	Switch 2			
ON	ON	ON	ON	ON	>2.5	<2.5	>0.2
ON	ON	OFF	ON	ON	>2.8	<2.2	>0.6
ON	ON	ON	OFF	ON	>2.8	<2.2	>0.6
ON	ON	ON	ON	OFF	>2.8	<2.2	>0.6
ON	ON	OFF	OFF	OFF	5	0	5
OFF	ON	ON	ON	ON	0	0	0
ON	OFF	ON	ON	ON	5	5	0
OFF	OFF	ON or OFF	ON or OFF	ON or OFF	0	0	0

TERM1 / TERM2 = Termination dipswitches at outdoor unit. See installation instructions with CT™ compatiable outdoor unit.



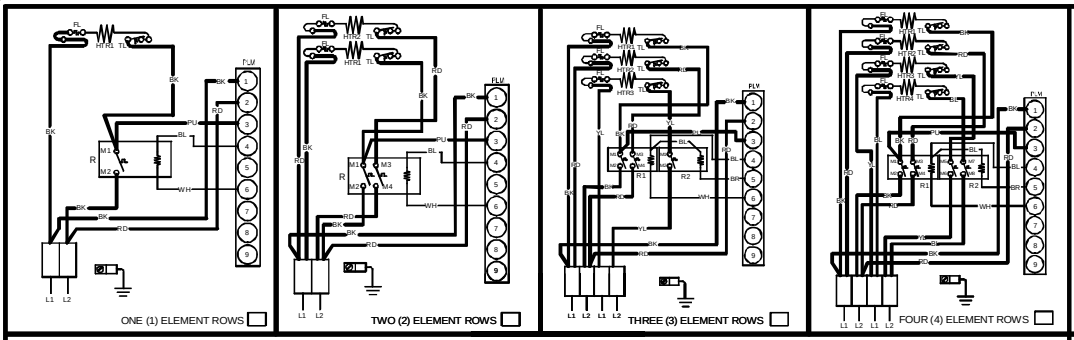
Indoor Unit BIAS and TERMINATION Dipswitches

WIRING DIAGRAMS

AVPTC

WARNING

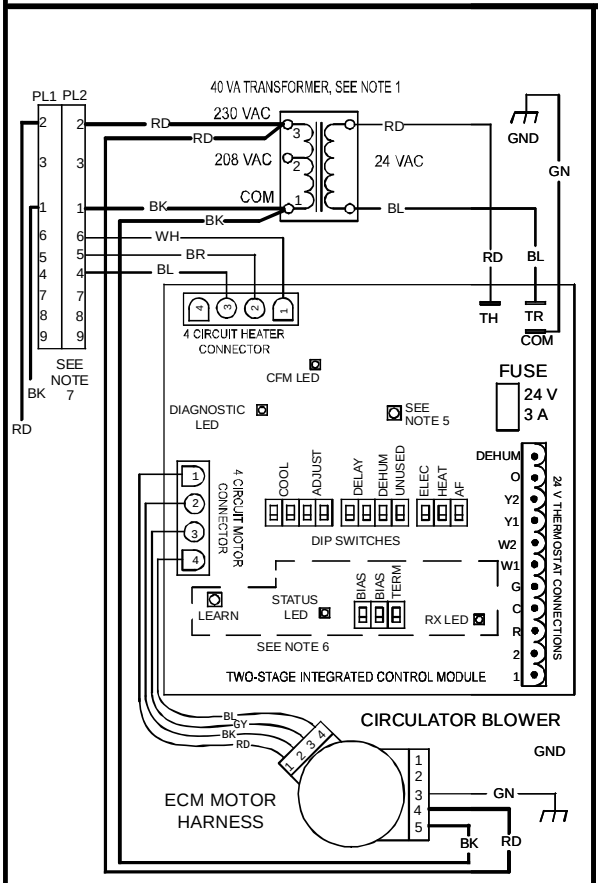
HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

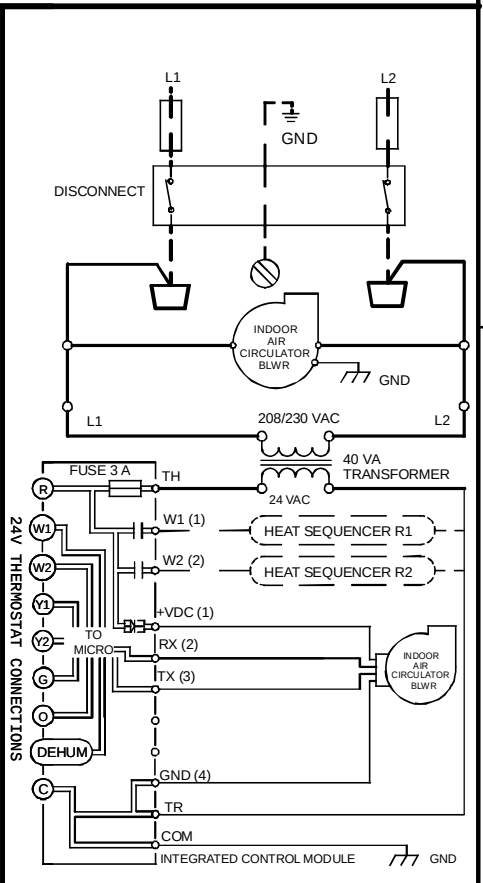


COLOR CODES:
PK PINK
BR BROWN
WH WHITE
BL BLUE
GY GRAY
RD RED
YL YELLOW
OR ORANGE
PU PURPLE
GN GREEN
BK BLACK

NOTE: WHEN INSTALLING HEATER KIT, ENSURE SPEED TAP DOES NOT EXCEED MINIMUM BLOWER SPEED (MBS) SPECIFIED FOR THE AIRHANDLER/HEATER KIT COMBINATION ON THIS UNIT'S S&R PLATE. AFTER INSTALLING OPTION AL HEAT KIT, MARK AN "X" IN THE ☐ PROVIDED ABOVE.
MARK ACCORDING TO NUMBER OF HEATER ELEMENT ROWS IN STALLED. NO MARK INDICATES NO HEAT KIT INSTALLED.

LOW VOLTAGE (24V)
LOW VOLTAGE FIELD
HI VOLTAGE (230V)
HI VOLTAGE FIELD
JUNCTION
TERMINAL
INTERNAL TO INTEGRATED CONTROL
EQUIPMENT GND
FIELD GND
FIELD SPLICE
RESISTOR
OVERCURRENT PROT. DEVICE
PLUG CONNECTION





NOTES:
1. PLACE RED WIRES ON TRANSFORMER TERMINAL 2 FOR 208 VAC OPERATION.
2. MANUFACTURER'S SPECIFIED REPLACEMENT PARTS MUST BE USED WHEN SERVICING.
3. IF ANY OF THE ORIGINAL WIRES AS SUPPLIED WITH THIS UNIT MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105°C. USE COPPER CONDUCTORS ONLY.
4. UNIT MUST BE PERMANENTLY GROUNDED AND CONFORM TO N.E.C AND LOCAL CODES.
5. TO RECALL THE LAST 6 FAULTS, MOST RECENT TO LEAST RECENT, DEPRESS SWITCH FOR MORE THAN 2 SECONDS WHILE IN STANDBY (N THERMOSTAT INPUTS)
6. BIAS AND TERM DIP SWITCHES MUST BE IN "ON" POSITION. RED STATUS LED PROVIDES NETWORK STATUS. GREEN RX LED INDICATES NETWORK TRAFFIC. USE LEARN BUTTON TO RESET NETWORK.
7. DISCARD CONNECTOR PL1 WHEN INSTALLING OPTIONAL HEAT KIT.

0140A00039-D

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.